BEFORE THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

DOCKET NO. 2019-185-E
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In the Matter of: South Carolina Energy Freedom Act (H.3659) Proceeding to Establish Duke Energy Carolinas, LLC's and Duke Energy Progress LLC's Standard Offer Avoided Cost Methodologies, Form Contract Power Purchase Agreements, Commitment to Sell Forms, and Any Other Terms or Conditions Necessary (Includes Small Power Producers as Defined in 16 United States Code 796, as Amended) – S.C. Code Ann. Section 58-41-20(A)	)))))))))))))	**PRE-HEARING REPLY BRIEF OF DUKE ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC**

Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP" and, together with DEC, the "Companies" or "Duke"), by and through counsel, hereby respectfully submit this Pre-Hearing Reply Brief to the Public Service Commission of South Carolina ("Commission") pursuant to the prehearing briefing schedule ordered by the Commission in Order Nos. 2019-104-H and 2019-105-H. In support of this Brief, the Companies state the following:

I. <u>Introduction</u>

As described in the Companies' initial Pre-Hearing Brief, pursuant to the requirements of S.C. Code Ann. § 58-41-20(A), enacted by the South Carolina Energy Freedom Act ("Act 62" or the "Act"), the Companies submitted a Joint Application for Commission approval of DEC's and DEP's (1) avoided cost calculation methodology; (2) Schedule PP Purchased Power tariffs ("Standard Offer Tariff" or "Schedule PP"); (3) Terms and Conditions for the Purchase of Electric Power ("Standard Offer Terms and

Conditions" or "Terms and Conditions"); (4) Standard Offer power purchase agreement ("Standard Offer PPA") available to all qualifying cogenerators and small power production facilities ("QFs") up to 2 megawatts ("MW") in size; (5) form of power purchase agreement available to small power producer QFs that are not eligible for the Standard Offer ("Large QF PPA"); and (6) notice of commitment to sell form ("Notice of Commitment Form"). The Companies' Application specifically addresses Duke's compliance with Section 210 of the Public Utility Regulatory Policies Act of 1978 ("PURPA"), and the Federal Energy Regulatory Commission's ("FERC") implementing regulations, in compliance with the Act.

Through both the submission of direct testimony and filing of their own initial pre-hearing briefs, the South Carolina Office of Regulatory Staff ("ORS") as well as intervenors South Carolina Solar Business Association ("SBA"), Johnson Development Associates ("JDA"),[1] the Southern Alliance for Clean Energy and South Carolina Coastal Conservation League ("SACE/CCL") have set forth their arguments and positions in response to the Companies' Application. ORS has largely supported the Companies' compliance with PURPA and Act 62, while recommending limited modifications to the Companies' avoided capacity rates and Standard Offer terms and conditions. SBA, JDA, and SACE/CCL, on the other hand, advocate for significant modifications to the Companies' quantification of avoided energy and capacity costs; oppose the Integration Services Charge; and argue that material changes to DEC's and DEP's Standard Offer, Large QF PPA, and Notice of Commitment Form are needed—at least in SBA's opinion—to make these documents commercially reasonable.

[1] SBA and JDA jointly filed an initial pre-hearing brief.

Duke's Rebuttal Testimony filed with this Commission on October 2, 2019 provides a robust response to these positions, including the incorporation of certain intervenor recommendations and alternative compromise proposals to address concerns raised by ORS and intervenors. Accordingly, the instant Reply Brief offers a high-level overview of the Companies' Rebuttal Testimony and highlights some of the key issues requiring Commission resolution in this proceeding.

II. Brief Summary of DEC/DEP Rebuttal Testimony

The Companies have submitted rebuttal testimony of the following witnesses:

- **George Brown**, General Manager of Strategy, Policy, and Strategic Investment, updates the Commission on the recent Notice *of Proposed Rulemaking on Qualifying Facility Rates and Requirements and Implementation Issues Under PURPA* ("PURPA NOPR") issued by FERC on September 19, 2019,[2] refutes intervenor testimony suggesting that PURPA's avoided cost framework is intended to encourage competition between utility generation and QF generation, and underscores that the "indifference principle" of PURPA restricts the Commission from promoting development of one resource over another. Mr. Brown also highlights the Companies' significant ongoing Competitive Procurement of Renewable Energy competitive solicitation program (the "CPRE Program") as a less risky and more cost-effective approach to actually achieving the benefits of market-oriented competition for customers by procuring new solar capacity at prices significantly below Duke's administratively determined avoided cost, which creates cost savings for customers.

[2] *Implementation Issues Under the Public Utility Regulatory Policies Act of 1978*, 168 FERC ¶ 61,184 (Sept. 19, 2019) ("PURPA NOPR").

- **Glen A. Snider**, Director of Carolinas Resource Planning and Analytics, supports the Companies' continued application of the peaker methodology to quantify DEC's and DEP's avoided capacity and energy costs as well as the calculation of DEC's and DEP's avoided cost rates to be paid to QFs pursuant to PURPA. Mr. Snider rebuts the baseless allegations of "anti-solar bias" and related arguments put forward by SBA's witnesses, and responds to the numerous technical arguments raised by SBA's hired expert witness, Mr. Ed Burgess, in SBA's effort to significantly increase the avoided cost rates paid to QFs above Duke's actual avoided capacity and energy rates. Mr. Snider also responds to the two technical recommendations to modify avoided capacity costs and seasonal allocation presented by ORS' expert witness Mr. Brian Horii.

- **Steven B. Wheeler**, Director of Pricing and Regulatory Solutions, supports the Companies' Standard Offer contract documents including the Schedule PP tariff, Standard Offer PPA, and Terms and Conditions, as well as the Integration Services Charge rate design. Mr. Wheeler proposes certain modifications to the Standard Offer contract documents to address ORS' recommendations and, agrees to SBA's recommendation to modify the Standard Offer energy storage protocols, and otherwise rebuts the arguments of SBA Witness Steven Levitas recommending modifications to the Standard Offer. Mr. Wheeler also explains why the Companies continue to support the average cost rate design as the most appropriate approach to recovering costs through the Integration Services Charge

- **David B. Johnson**, Director of Business Development and Compliance, supports the Companies' Large QF PPA and Notice of Commitment Form. Mr. Johnson proposes certain modifications to the Large QF PPA and Notice of Commitment Form to constructively address recommendations by SBA Witness Levitas, while also rejecting certain of SBA's recommendations as not commercially reasonable or otherwise shifting too much risk to the Companies' customers.

- **Nick Wintermantel**, Consultant and Partner at Astrapé Consulting, supports the Astrapé Solar Ancillary Services Study ("Astrapé Study" or "Study") developed on behalf of the Companies to quantify DEC's and DEP's ancillary services cost of integrating QF solar, which is used to calculate the Integration Services Charge. Mr. Wintermantel rebuts technical critiques of the Study by SBA Witness Burgess and SACE/CCL Witness Brendan Kirby. Mr. Wintermantel highlights that the Study has been validated by the North Carolina Utilities Commission's Public Staff ("NC Public Staff") and notes that both the ORS and NC Public Staff support applying the Integration Services Charge to solar QFs causing DEC and DEP to incur increased ancillary services costs.

- **Sam Holeman,** Vice President, Transmission System Planning and Operations, testifies to Duke's operational experience managing the new and increasing challenges of integrating significant, unscheduled and unconstrained QF solar energy into the DEC and DEP Balancing Authorities, as well as how uncontrolled QF solar impacts Duke's responsibility to maintain compliance with NERC system balancing reliability regulations. Mr. Holeman testifies that his recent operational experience is that DEC and DEP are required to maintain increased operating reserves to integrate the approximately 3,300 MW of installed solar in the DEC and DEP BAs, and that this recent operational experience supports implementation of the Integration Services Charge. Mr. Holeman also explains that SBA Witness Burgess' recommendation to establish separate avoided costs solely for the DEP-East Balancing Authority Area should be rejected as inconsistent with the manner in which DEP operates the generating fleet and transmission system.

III. Response to Other Parties' Positions

A. The Companies' Avoided Cost Methodology, Rates, and Governing Contractual Documents Meet the Requirements and Achieve the Policy Goals of PURPA and Act 62

While ORS and SACE/CCL largely focus their respective pre-hearing briefs and the testimony of their witnesses on technical aspects of the Companies' proposals, SBA/JDA's initial pre-hearing brief dedicates significant time to formulating an overarching argument that the purpose of the PURPA administration and implementation provisions of Act 62, specifically S.C. Code Ann. § 58-41-20, is to promote increased solar development in the State which SBA contends should sway the Commission toward findings and conclusions that are more favorable toward solar QFs. As shown below and more thoroughly discussed in rebuttal testimony of the Companies' Witnesses Brown and Snider, SBA/JDA's reliance on this "overarching purpose" of Act 62 in this proceeding is misguided and, in many cases, evinces a fundamental mischaracterization of the goals and requirements of PURPA:

1. **SBA's argument fails to address FERC's recent acknowledgment that longer-term and higher priced contracts impose significant risks on customers.** FERC first adopted regulations to implement PURPA 39 years ago. 11 days before initial pre-hearing briefs were filed, FERC put forward a significant NOPR to modernize PURPA implementation and to reduce the risk of the mandatory purchase obligation for customers. As explained by Witness Brown, FERC's findings regarding customer protection undercut many of the policy arguments set forth in SBA/JDA's initial pre-hearing brief. In particular, FERC's acknowledgment that long-term fixed rate contracts have resulted in

unjust and unreasonable increased costs for customers[3] wholly invalidates SBA's claim that long-term fixed-price purchases at administratively determined avoided costs "tends to drive energy and capacity costs down over the long term."[4]

2. **The FERC NOPR and other southeastern States' implementation of PURPA undercut SBA/JDA's claim that longer-term, fixed-price contracts are necessary for QFs to attract capital and finance their projects.** Evaluating information compiled through its 2016 technical conference, FERC found that the evidence suggests QFs do not require energy rates to be fixed to obtain financing.[5] Notably, over the past 12 months, 9 solar QFs, totaling approximately 472 MW of new QF solar capacity have signed fixed five-year contracts with DEC and DEP in North Carolina.[6] Mr. Brown also highlights that the 10-year fixed-price energy forecast risk assigned to customers under Act 62 is for a longer term and more significant than any other southeastern State—each of which implement PURPA by fixing avoided energy rates for a term shorter than 10 years.[7]

3. **SBA's emphasis on the need to promote "competition" between utilities and QFs demonstrates a fundamental misunderstanding of Act 62 and PURPA**. As Witness Brown points out, QF development under PURPA is not market driven. Instead, QFs are guaranteed an administratively-established avoided cost rate, meaning that they do not compete with any other generation resource—QF or utility-owned—to set the price at which QFs will deliver their output. SBA's testimony advocating for the Commission to recognize benefits to Duke's customers of "competition" between QFs and utilities is thus

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[3] Duke Brown Rebuttal, at 5-9.
[4] Joint SBA/JDA Initial Brief, at 10.
[5] Duke Brown Rebuttal, at 8-9; PURPA NOPR at ¶¶ 30, 69-78.
[6] Duke Brown Rebuttal, at 25.
[7] Duke Brown Rebuttal, at 25-26.

a misleading characterization of PURPA's mandatory purchase obligation at avoided costs. To the contrary, as Witnesses Brown and Snider note, the PURPA avoided cost framework is designed to pay QFs the full incremental or avoided costs avoided by QF purchases and, assuming accurately calculated, to leave customers financially unaffected or "indifferent" by the purchase of the QF power.[8] Further, contrary to SBA's contention, the Companies do not "compete" with solar QFs because solar QFs cannot displace Duke's future needs for the dispatchable baseload generation required to meet customers' energy needs in all 8760 hours of the year and, increasingly, to manage the intermittent nature of solar generation.

4. **Approving the Companies' proposed avoided cost rates would not "result in a virtual, if not total, elimination of large-scale solar development in the State."**[9] Contrary to SBA's and JDA's dramatic and completely unsupported claim that Commission approval of Duke's proposed avoided cost rates would not "result in a virtual, if not total, elimination of large-scale solar development in the State," Witness Brown explains that Duke is committed to competitively procuring up to 1,300 MW of new renewable energy capacity at rates below avoided costs for the benefits of customers over the next few years.[10] Both Southern Current and JDA already have participated in "Tranche 1" of the CPRE Program and each won bids by offering to sell energy from their solar QF facilities at prices below Duke's avoided costs.[11] Moreover, as Witness Brown explains, the Commission should be skeptical of SBA's sweeping claims on this point since PURPA largely exempts QFs from Commission oversight of their profits and business

[8] Duke Brown Rebuttal, at 20; Duke Snider Rebuttal, at 6, 18.
[9] SBA/JDA Joint Initial Brief, at 3.
[10] Duke Brown Rebuttal, at 17-18.
[11] Duke Brown Rebuttal, at 21.

operations such that the Commission does not have any clear insight into a QF developer's cost of doing business or the level of profit deemed "reasonable" to attract equity capital.

5. **SBA's allegations of anti-solar bias in calculating avoided cost rates are baseless and reflect SBA's desire to subsidize the solar industry through higher avoided cost rates to the disadvantage of consumers.** Witness Snider explains that Duke has accurately and appropriately calculated its avoided costs consistent with the well-established peaker methodology, and by applying the same inputs and assumptions from DEC's and DEP's most current integrated resource plans. In comparing the avoided cost calculations filed by Duke versus the recommendations put forward by SBA's expert, it is clear that SBA's proposed adjustments represent a modestly disguised effort to subsidize the solar industry through artificially raising Duke's avoided cost rates.[12] Moreover, the simple fact that Duke is competitively procuring significant amounts of QF solar dispels SBA's arguments that Duke is attempting to render QF development economically infeasible. Viewed against its own self-interest in establishing artificially high, inaccurate avoided cost rates, SBA's arguments of bias to establish artificially low avoided costs is suspect at best.

B. The Companies' Avoided Cost Methodology and Rates are Just and Reasonable

As a threshold matter, neither the ORS nor any other intervenor has objected to the Companies' use of the peaker methodology to calculate avoided energy rates. In fact, ORS Witness Horii finds that "[b]ased on [his] review, the avoided energy costs reflected by the Companies in the Standard Offer tariffs are a reasonable result of the Companies' calculations. The calculation methodology is consistent with PURPA and the

[12] Duke Snider Rebuttal, at 15, 42, 51.

Commission's prior approval." While ORS also recommends two inappropriate adjustments to Duke's avoided capacity rates, SBA proposes numerous adjustments to both DEC's and DEP's avoided energy and capacity rates and avoided cost rate design. As more robustly refuted in rebuttal testimony of the Companies' witnesses, SBA's proposals grossly inflate Duke's actual avoided costs and should be rejected for, among other things, the following reasons:

AVOIDED ENERGY RATE CALCULATIONS

1. **SBA's contention that Duke's recognition of future negative avoided energy cost values in its hourly production cost modeling suggests deficiencies in its avoided energy rate calculation is incorrect.** Duke Witness Snider describes in detail how hourly production cost modeling used to quantify avoided energy costs can identify certain hours where adding incremental QF energy to the grid increases operating cost and provides no incremental value—creating a "negative" avoided cost. This can occur for a variety of reasons when QF energy is added to the system such as shifting combustion turbine ("CT") start costs from one hour to the next, thereby creating an instance where a start cost is avoided in one hour but the cost is then incurred in the next hour. While no model can completely match future conditions at the time QF energy will be delivered, the precise operating conditions identified by SBA Witness Burgess are, in fact, the "real-world" operating constraints of Duke's generation fleet and transmission system, and are accurately represented in the model.[13] Notably, Witness Burgess admits that these constraints could actually represent "real-world" conditions of the Duke systems by carefully qualifying his testimony that Duke's modeling "*may not*" represent real world

[13] Duke Snider Rebuttal, at 20-22.

conditions and agreeing that "it is possible" for avoided energy costs to be negative during some hours.[14] Accordingly, the existence of such negative avoided energy costs are not indicative of any error in Duke's modeling or the avoided energy rate calculation, and SBA's implicit suggestion of some unquantified deficiency should be rejected.

2. **SBA's proposal to separately calculate avoided energy rates for DEP-East and DEP-West as separate Balancing Authority Areas is based on an incorrect understanding of DEP's operations and obligation to purchase QF power under PURPA.** As Witnesses Snider and Holeman explain, SBA Witness Burgess' recommendation to fix separate avoided energy rates solely for the DEP-East Balancing Authority Area ("BAA") should be rejected because: (1) it is based upon a misunderstanding of the "marginal unit" as compared to "marginal resource" in the context of how avoided energy costs are calculated; (2) wrongly assumes that coal is most often the marginal unit that can be avoided in DEC and DEP-East; and (3) lacks understanding of the manner in which the DEP generating fleets are dispatched through interconnected operations across the DEP-East and DEP-West BAAs to serve customers' energy needs.[15] Because it is based on these incorrect assumptions, SBA's rate proposal should be rejected. Additionally, Mr. Snider explains that SBA's proposal fails to recognize that PURPA's mandatory purchase obligation applies to DEP as an electric utility and does not distinguish between the utility's operations in one state versus another.[16]

[14] SBA Burgess Direct, at 25.
[15] Duke Snider Rebuttal, at 24-30; Duke Holeman Rebuttal, at 45-46.
[16] Duke Snider Rebuttal, at 30.

3. **SBA's proposed changes to the Companies' energy rate design pricing periods are self-serving for solar QFs and would less accurately reflect the value of QF energy to customers.** Witness Snider explains that SBA's proposed modification to the energy rate design pricing periods is designed to accommodate the specific operating limitations of solar QFs while shifting compensation away from hours when the Companies and customers receive the most value for the energy delivered by the QF. In contrast, the Companies have appropriately proposed a more granular energy rate design that incentivizes QFs to maximize output during times when energy is of most value to customers, as opposed to incentivizing QFs to maximize output at times when energy is of most value to the QF developer. The Companies' energy rate design is supported by ORS as well as the NC Public Staff. [17]

4. **SBA's contention that the Companies' rate calculation methodology for Large QFs should simply rely upon generic QF calculations versus a solar-specific generation profile should be rejected.** Duke applies the same peaker methodology in establishing avoided cost rates for Large QFs not eligible for the Standard Offer (2 MW to 80 MW) as it does for QFs eligible for the Standard Offer. However, as Witness Snider explains, the Companies' rate calculations for Large QFs are intended to more accurately quantify the avoided costs of energy delivered by Large solar QFs as the Companies plan to apply a more accurate solar generation profile to further ensure that the avoided energy rates calculated for Large QFs most precisely equal the Companies actual avoided cost. SBA's opposition to more precisely calculating the future avoided costs to be avoided by large solar QFs should be rejected.[18]

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[17] Duke Snider Rebuttal, at 38,40

[18] Duke Snider Rebuttal, at 33-36.

5. **SBA's unsupported argument that the Companies' avoided energy cost calculations fail to account for certain environmental costs of marginal generating units, including coal ash is factually incorrect and should be rejected.** As detailed by Duke Witness Snider, projected environmental costs associated with NOx and SO_2 emissions, as well as coal ash handling costs at existing coal-fired generating units are included in Duke's production cost model for purposes of fully and accurately calculating DEC's and DEP's avoided energy rates.[19] Further, the addition of QF energy on the system has no impact on historic coal ash costs, and the only coal ash costs that can be potentially avoided by QFs are the going forward-costs previously described.

6. **SBA wrongly assumes that solar QFs provide a fuel hedge that should increase avoided energy rates.** As Witness Snider explains, QFs do not actually provide a hedge over and above Duke's actually-incurred cost of fuel. To the contrary, QFs are effectively granted a "Put Option" under PURPA's mandatory purchase obligation enabling these generators to sell "must-take," fixed-rate power to the Companies.[20]

AVOIDED CAPACITY RATE CALCULATIONS

7. **ORS Witness Horii's proposed calculation of CT costs assuming a 20-year useful life of a CT does not reflect the actual useful life of the Companies' CTs.** As Witness Snider explains, ORS Witness Horii's recommendation does not align with the significantly longer 35-year useful life, which the Companies used for integrated resource planning purposes. Paying a solar QF based upon the assumption that an avoided CT would be fully depreciated over 20 years versus the significantly longer 35-year or longer

[19] Duke Snider Rebuttal, at 32.
[20] Duke Snider Rebuttal, at 30-31.

useful lives used for integrated resource planning (and for ratemaking[21]) would subsidize QFs and not leave customers indifferent between purchasing energy from utility generation versus QF generation in the future.[22]

8. **SBA omitted key information when recommending that Duke should apply a higher CT cost purportedly based on Dominion Virginia's 2018 IRP filing.** SBA superficially supports this recommendation by pointing out that Dominion Energy Virginia calculated significantly higher CT costs for an aero-derivative CT in its 2018 IRP.[23] As Witness Snider notes, however, SBA failed to acknowledge that Dominion Energy Virginia did not use an aero-derivative CT either in calculating its avoided cost rates or even select this capacity resource in its 2018 IRP. Witness Snider also explains that Duke has not included any aero-derivative CT in its 2018 IRPs, and has recently built numerous CTs of the same "F-Class" model used in calculating DEC's and DEP's avoided capacity costs under the peaker methodology. Moreover, Duke's 2019 IRPs also identify that DEC and DEP are each evaluating constructing numerous additional F-class CTs during the future resource planning period. SBA Witness Burgess' nebulous suggestion that the higher cost aero-derivative CT model has any relevance to Duke's quantification of the cost to be avoided from QF purchases under the peaker methodology is baseless and should be rejected.[24]

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[21] Notably, the Commission also recently approved DEC's and DEP's 40-year CT useful life assumption in fixing base rates in the Companies' most recent general rate case proceedings in Docket Nos. 2018-318 and 319-E.
[22] Duke Snider Rebuttal, at 50-52.
[23] SBA Burgess Direct, at 57.
[24] Duke Snider Rebuttal, at 42-45.

9. **SBA's assertion that Duke can sell excess QF capacity into PJM and should pay QFs for such speculative future capacity value is inconsistent with PURPA.** As explained by Witness Snider, FERC has long held that "an avoided cost rate need not include capacity unless the QF purchase will permit the purchasing utility to avoid building or buying future capacity…[the purchase] obligation does not require a utility to pay for capacity that it does not need."[25] Duke has appropriately identified DEC's and DEP's respective first year of future capacity need based upon each utility's 2019 IRP and it would be inconsistent with PURPA's indifference principle to begin paying QFs for capacity prior to the new capacity actually being needed to serve system load.

10. **SBA's argument for a different seasonal allocation of QF capacity value unjustly subsidizes solar QFs at the expense of the Companies' customers in violation of PURPA's indifference principal.** SBA's seasonal allocation proposal does not take into account the impact of "must-take" solar output and incorrectly includes an extremely broad number of hours, resulting in a seasonal allocation that is "biased" towards solar QFs. As explained by Witness Snider, the underlying Solar Capacity Value Study completed by Astrapé Consulting most accurately estimates the value of incremental QF solar capacity, which is validated by the study's results. Accordingly, SBA's concerns regarding the Companies' seasonal allocation should be dismissed.

11. **ORS Witness Horii's seasonal allocation proposal does not account for the fact that, by law, the Companies must purchase the CPRE Program "Tranche 4" level of solar resources.** As Witness Snider explains, under existing law, solar procured under the Standard Offer rates should be priced as incremental to the Tranche 4 level of

[25] Duke Snider Rebuttal, at 54, *citing City of Ketchikan*, 94 FERC ¶ 61,293 (2001) ("Ketchikan") citing Order No. 69, FERC Stats. & Regs., Preambles 1977-1981, P 30,128 at 30,865.

solar under the CPRE Program and should take into account other existing legal obligations to procure solar. Pricing solar based on ORS Witness Horii's recommended lower Existing plus Transition solar level would essentially result in double counting the capacity value provided by QFs during certain hours and overpay future QF solar in excess of the value delivered to Duke's customers.[26]

INTEGRATION SERVICES CHARGE

The Companies' proposed Integration Services Charge accurately and appropriately accounts for the increased operational costs being incurred to integrate intermittent solar QF generation into the DEC and DEP systems, and properly allocates these increased operating costs to the cost causer—the intermittent solar QF—as opposed to further burdening customers with increased costs. Each of the intervenors generally concede that integrating increased amounts of intermittent solar resources is causing Duke to incur increased ancillary services costs, and ORS supports the Commission adopting Duke's proposed Integration Services Charge as reasonable.[27] SBA and SACE/CCL, on the other hand, advocate for a wholesale rejection of the charge, but their rationale is flawed and should be rejected for, amongst others, the following reasons:

12. **SBA's and SACE/CCL's criticisms regarding the Astrapé Study methodology are incorrect.** As explained by Witness Wintermantel, the criticisms raised by SBA and SACE/CCL are the same methodological criticisms of the Astrapé Study that were raised in North Carolina, but ultimately dismissed by the NC Public Staff following further engagement with and understanding of the Study. In fact, the NC Public Staff

[26] Duke Snider Rebuttal, at 61-63.
[27] ORS Horii Direct, at 19.

validated the results of the Study and stated that their "review indicated that Duke's proposed [solar Integration Services Charge] is generally reasonable and within the range of other [solar integration cost] studies[.]"[28] ORS' expert similarly finds the Study results acceptable and recommends the Charge be approved.[29] SBA and SACE/CCL's criticisms should therefore be rejected.

13. **<u>SBA is incorrect in arguing that "Duke fails to incorporate actual observed integration cost levels</u>."** As explained by Witness Holeman, Duke has observed increased ancillary services costs as it has continued to integrate increasing levels of intermittent, "must-take," non-dispatchable solar QF resources into the DEC and DEP systems. Duke's operational experience fully aligns with the modeling undertaken in the Astrapé Study.[30] As explained by Witness Wintermantel, the Study models integration costs based upon the operational impacts of solar resources actually installed on the DEC and DEP systems and benchmarks to historical compliance with the NERC reliability standards in determining the increased level of operating reserves required to integrate increasing penetrations of QF solar.[31]

14. **<u>SBA's suggestion that the Companies' have failed to mitigate the impact of future updates to the average Integration Services Charge is incorrect.</u>** As Witness Wheeler explains, the Companies' proposed rate design includes a cap or maximum rate that can apply to PPAs executed under rates approved in this proceeding. The cap will offer solar generators financial protection against undue increases in the Integration Services Charge over time during their initial contract term. The cap on future

[28] Duke Wintermantel Rebuttal, at 8-9, 40-41.
[29] ORS Horii Direct, at 23.
[30] Duke Holeman Rebuttal, at 22-25, 35.
[31] Duke Wintermantel Rebuttal, at 14, 28.

increases to the Integration Services Charge is appropriately set at the incremental or marginal ancillary services cost rate for the last 100 MW of solar generation forecasted to be installed in 2020 under the Companies' IRPs.[32]

15. **SBA fails to recognize the Companies' efforts to balance both customers' and QFs' interests in establishing and implementing the solar Integration Services Charge.** Duke Witness Snider explains in his rebuttal testimony how the Companies, for the benefit of the QF, made the policy decision to (1) apply the SISC only on a prospective basis; (2) apply the average, as opposed to incremental (and thus higher) charge; (3) not include additional "re-dispatch" costs in calculating the charge; (4) allow the SERVM model to curtail solar (which is inappropriate under PUPRA) prior to assuming the need for increased operating reserves; and, (5) provide mitigation measures to limit the QF developer's exposure to the charge and, at the QF developer's option, to avoid the charge by operating as "controlled solar generators" and not imposing increased ancillary service costs on the Duke systems.

16. **SBA grossly mischaracterizes the independent integration study contemplated by Act 62; the Ancillary Services Study underlying the Integration Service Charge is not meant to address or replace the study authorized by Act 62.** SBA argues that it is premature to impose an Integration Services Charge and that Act 62 authorizes an independent study to be conducted to investigate integration of increased levels of renewable energy and emerging energy technologies. Witness Snider explains that this is a gross mischaracterization of the General Assembly's intent and that the clear intent of the study referred in Act 62 was to identify what additional actions and

[32] Duke Wheeler Rebuttal, at 27-28.

investments would be required to accommodate higher levels of intermittent generation on the grid. Such a study would identify future potential grid assets that help to enable increasing levels of intermittent generation in a safe and reliable manner. The scope of this planning study pursuant to Act 62 would be markedly different from the Ancillary Services Study performed by Astrapé, which was conducted to quantify the specific costs borne by consumers associated with the provision of additional operational reserves also known as ancillary services. SBA's subterfuge on this issue should be rejected.

C. The Companies' Proposed Governing Contractual Documents are Commercially Reasonable and Consistent with PURPA

ORS is largely supportive of the Companies' governing contractual documents, including the Standard Offer PPA, Large QF PPA, Terms & Conditions, and Notice of Commitment Form. In order to resolve ORS' limited concerns, the Companies have proposed modifications that fully address each stated concern, including by:

- Modifying the definition of Material Alteration to delete the reference to estimated annual energy production to address ORS Witness Horii's concern that it may not be appropriate under PURPA for such modification to subject the QF to PPA termination; and

- Revising Paragraph 1(i) of the Terms and Conditions to specifically provide QFs with a 30-day cure period in response to any notice of non-compliance issued by the Companies.

Notwithstanding ORS's position that no other substantive revisions are necessary to the previously filed versions of these contractual documents, the Companies have also made further changes to their Standard Offer energy storage protocols and Large QF PPA to accommodate some additional concerns raised by SBA. These changes were made in a good faith effort to reach compromise, as addressed in the testimony of Witnesses Johnson and Wheeler, and include, but are not limited to:

- To address SBA's concern that QFs should not be penalized for interconnection delays, Duke has adjusted the Commercial Operation Date Milestone ("COD Milestone") to 90 calendar days after the Interconnection Facilities and System Upgrades In-Service Date, which may be extended day-to-day for any delays not caused by the Seller;

- Allowing Large QFs to assert force majeure as a defense to failure to achieve the COD Milestone and incorporating other minor adjustments to the application of force majeure to address concerns raised by SBA Witness Levitas;

- Adopting a capacity-based methodology for calculating liquidated damages in place of their initially proposed revenue-based calculation methodology;

- Adopting the Large QF PPA Energy Storage Protocol for Standard Offer QFs (amended as described below);

- Adopting SBA's proposed changes to Section 6 of the Companies' Energy Storage Protocol for both Large QFs and QFs who qualify for the Standard Offer; and

- Removing Sections 19.21 and 19.26 of the Large QF PPA and, with them, the provisions setting failure to fully comply with the confidentiality and publicity obligations as events of default.

In light of these and other concessions, the Companies believe that SBA's remaining points of contention are not reasonable and oppose SBA's proposals as discussed in Duke's Rebuttal Testimony, including but not limited to, for the following reasons:

STANDARD OFFER CONTRACTS

1. **<u>SBA's proposal to define a Material Alteration based upon a "maximum annual energy production" for each QF Facility rather than the "estimated annual energy production" would create significant overpayment risk to customers</u>.** As Witness Wheeler explains, the Companies' proposed Material Alteration definition was crafted to more clearly identify conditions that warrant a review of the continued accuracy of avoided cost rates being paid under the Standard Offer PPA to

ensure they continue to properly align with the value received by ratepayers where a QF owner proposes to materially alter a committed QF generating facility. In this way, the Companies can mitigate the inherent risk to customers that arises when QFs seek to increase their energy output and expect to be paid for that additional output at older, higher avoided cost rates.[33]

2. **For similar reasons, SBA's advocacy for removal of provisions that would prohibit a QF from adding storage or "time-shifting" periods during which the QF will put power on the grid would frustrate the Companies' ability to integrate intermittent solar generation forecasts into their operating plans.** As Witness Wheeler points out, the Companies must stand ready at all times to replace solar generation, which is by nature intermittent, whenever it is inoperable and require basic information regarding the expected generation to do so efficiently. If a QF wants to change its operation during the contract term by the addition of storage facilities to shift delivery into on-peak hours, they should seek the Company's consent to ensure that the changed operation holds retail customers harmless. To do otherwise results in retail customers potentially paying in excess of avoided cost.[34]

3. **SBA's contention that the Companies' proposed Material Alteration definition and related provisions would discourage QFs from incorporating storage resources is unfounded.** As Witness Wheeler explains, the Companies agree with SBA that such resources offer numerous benefits, including the potential to mitigate the impacts of solar intermittency and to allow energy to be delivered when it is most needed. The Companies are only seeking to properly reflect the proposal for new energy storage and

[33] Duke Wheeler Rebuttal, at 13-16.
[34] Duke Wheeler Rebuttal, at 20.

corresponding generation alteration to ensure that the marginal cost benefit aligns properly with the QF rate.[35]

LARGE QF PPA

4. **SBA's proposal to include a "maximum annual energy production" value and to amend the application of "material modification" are objectionable in the Large QF PPA for the same reasons described by Witness Wheeler regarding the Standard Offer PPA.** Witness Johnson's testimony explains that the Companies use the "material modification" concept to mitigate the inherent risk to customers that arises when QFs seek to increase their energy output and expect to be paid for that additional output at older, higher avoided cost rates.[36] SBA's proposed modifications would shift greater risks to Duke and customers under the contract and would restrict the Companies from protecting customers against this risk.

5. **SBA's proposed calculation of liquidated damages ("LDs") is arbitrary and SBA offers no meaningful support for this calculation methodology.** As explained by Witness Johnson, SBA does not provide any justification for its proposed method for calculating LDs aside from noting that it links the LD amount to project capacity and that a Michigan utility has adopted a similar approach.[37] Aside from those two nebulous, non-formula driven markers, SBA does not explain how or why it reached the conclusion that $5,000 per MW and $2,000 per MW are reasonable approximations of the Companies' likely damages in the event a QF project is abandoned or not timely placed into service. Nevertheless, in a good faith attempt to address SBA's purported concern that the

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[35] Duke Wheeler Rebuttal, at 21.
[36] Duke Johnson Rebuttal, at 14.
[37] Duke Johnson Rebuttal, at 8-9.

Companies' originally proposed revenue-based LD formula is not a suitable method for estimation of potential damages, the Companies proposed an alternative capacity-based approach, as noted *supra* Section II.C, which is similar to the LD provision contained in many Large QF PPAs that the Companies have executed over the last several years.

6. **<u>SBA's proposal to establish arbitrary liquidated damages amounts for violations of the confidentiality and publicity provisions undervalues the potential for damages to the Companies resulting from breach</u>.** As explained by Witness Johnson, a $10,000 penalty for violating the Companies' intellectual property rights is an arbitrary and insignificant amount that does not approximate the scope of actual potential damages.[38] Accordingly, Duke has rejected this recommendation.

7. **<u>SBA's proposal to allow Seller termination if certain costs for interconnection exceed $75,000 per MW AC is unnecessary</u>.** As Witness Johnson explains, the Companies' proposed revisions to the Large QF PPA require the Seller to have tendered an executed Facilities Study Agreement to the Companies, meaning that Sellers will have received estimated costs to complete Interconnection Facilities and Network Upgrades prior to entering into a PPA. Accordingly, the Seller can decide at that time whether to enter into a PPA in light of the costs set forth in the System Impact Study Report, or to abandon the project.[39] Providing this walk-away right is not commercially reasonable and would shift greater risks to customers under the Large QF PPA.

[38] Duke Johnson Rebuttal, at 15-16
[39] Duke Johnson Rebuttal, at 41.

NOTICE OF COMMITMENT FORM

With respect to the Companies' Notice of Commitment Form, SBA contends the provisions requiring the QF to (a) commit to deliver power within 365 days of execution; and (b) obtain required environmental and land use permits and approvals before executing the form are unreasonable. Instead, SBA proposes that a QF should be able to establish a legally enforceable obligation ("LEO") upon simply (a) establishing control of the Project Site; and (b) submitting an interconnection request and either (1) having received a System Impact Study Report; or (2) showing that one year has elapsed since filing an Interconnection Request. As set forth below, SBA's position is inconsistent with the purpose of establishing a binding LEO in the absence of a PPA on a variety of grounds.

8. **SBA's contention, through testimony of Witness Levitas, that the 365-day delivery requirement would result in no QF "ever form[ing] a non-contractual LEO that it could comply with" is false.**[40] As explained by Witness Johnson, while some larger QFs may not be able to complete the development cycle within one year, this simply means that the QF would have to either execute a PPA or wait until later in the development cycle to execute a Notice of Commitment Form. Moreover, equivalent or even significantly more stringent delivery period requirements have been approved in Idaho, Texas, and New Mexico, with the United States Court of Appeals for the Fifth Circuit affirmatively finding Texas' 90-day commitment to deliver requirement consistent with both PURPA and FERC's implementing regulations.[41]

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[40] Duke Johnson Rebuttal, at 25.
[41] Duke Johnson Rebuttal, at 26-28.

9. **<u>SBA's contention that QFs should not have to front the cost of obtaining environmental permits and land-use approvals before securing a LEO ignores the need to demonstrate project viability</u>.** As Witness Johnson explains, in order for a QF to make a reasonable showing of commercial viability and financial commitment to construct the QF generator and to deliver power over a future specified term, the QF must have obtained all legal authorizations required to construct the generator at the proposed project site. This necessarily requires the QF to have obtained the necessary permits and any land use approvals required to authorize the QF developer to construct the QF facility. Similar requirements have been upheld in other states, including Montana and Minnesota.[42]

10. **<u>Completion of a System Impact Study Report is in the control of the QF and, standing alone, does not evince a meaningful commitment by the QF sufficient to establish a LEO</u>.** Although, the fact that a QF has progressed through the System Impact Study step of the generator interconnection study process provides some indicia of a commercially viable project, it is, per Section 4.3.4 of the South Carolina Generator Interconnection Procedures, only a "*preliminary non-binding indication* of the cost and length of time that would be necessary to provide Interconnection Facilities." (emphasis added). Accordingly, as Witness Johnson explains, it is an insufficient means by which to trigger a LEO. Rather than conditioning the LEO on an act by the utility (i.e. delivering the System Impact Study Report), Witness Johnson explains that a more appropriate prerequisite event would be the QF's submission of a Facilities Study Agreement which, although still not a binding commitment, marks the next step in the

[42] Duke Johnson Rebuttal, at 34.

interconnection process in control of the QF.[43] Accordingly, the Companies have incorporated this requirement as a prerequisite to execution of the Notice of Commitment Form.

11. **<u>The passage of a year from the date a QF submits an interconnection request is arbitrary and provides no meaningful indication of a QF's commercial viability</u>.** As Witness Johnson explains, in the absence of a completed System Impact Study, a QF does not have any insights into the cost of its required interconnection facilities and system upgrades, and, therefore, is not to the point in the development process of knowing whether the generating facility is commercially viable. Witness Johnson highlights that 88 South Carolina Interconnection Customers are also currently interdependent on the decisions of other earlier-queued Interconnection Customers and it would be arbitrary to simply adopt an assumption that these QFs are commercially viable after being in the interconnection queue for 12 months.[44]

IV. <u>Procedural Issues for Commission Consideration</u>

Duke has identified the following procedural issues for the Commission's consideration and decision either before or at the opening of the evidentiary hearing on October 21:

1. <u>Opening Statements:</u> Duke does not object to SBA's proposal for all parties to be allowed an opening statement not to exceed five (5) minutes. Duke has put forward an extensive pre-filed case, and, therefore, intends to keep the Companies' opening statement brief in the interest of promoting efficiency in the proceeding.

[43] Duke Johnson Rebuttal, at 29, 32.
[44] Duke Johnson Rebuttal, at 31.

2. Scheduling: Recognizing the Commission's need to conclude the hearing on October 23, 2018, Duke is prepared to extend the hearing each day as late as required to accommodate the Commission's schedule.

3. Witness Panels: To promote efficiency during the evidentiary hearing, Duke is evaluating presenting certain of the Companies' witnesses as a panel in this proceeding. Duke will request the Chairman's permission to present those witnesses in a panel prior to the hearing commencing. Duke similarly does not oppose other parties presenting their witness as a panel, where the issues presented in their pre-filed testimony are complementary in nature.

4. Duke will evaluate excusing witnesses: To promote efficiency during the evidentiary hearing and to avoid the unnecessary appearance of witnesses that will not be subject to cross examination, Duke plans to advise the Commission and the parties after pre-hearing reply briefs and sur-rebuttal testimony is filed whether Duke is agreeable to stipulating the testimony of other parties' witnesses.

5. Order of Presentation: Under the normal order of presentation of testimony, set forth in S.C. Code Ann. Regs. § 103-842(B), the Applicant would present its direct case first, followed by Intervenors' direct case, and then followed by the ORS' direct case. After the presentation of the direct cases, the hearing would proceed to the Applicants' rebuttal case. Given the time constraints of this proceeding, the Companies are willing to put forward their direct and rebuttal cases at the same time, but requests to present their consolidated cases at the conclusion of the Intervenors' direct case. Deviating from the normal order of presentation is appropriate given the scheduling constraints, the technical nature of this case, and to ensure the Companies are not forced to respond to Intervenor

testimony that has not yet been put into the record. Such an approach also recognizes that the controverted issues in this proceeding were first raised in intervenors' direct testimony and subsequently responded to in Duke rebuttal testimony. This approach further recognizes that Duke presented certain compromise positions amending the Standard Offer, Large QF PPA, and Notice of Commitment Form in the its rebuttal testimony in order to address concerns and accommodate recommendations by intervenors and the ORS. Duke anticipates that its modified order for presentation greatly reduces the Companies' likely need to recall witnesses in order to respond to answers given or positions taken at hearing by Intervenors' witnesses.

V. <u>Stipulations / Issues Not in Controversy</u>

The Companies have attempted to resolve issues by agreeing in Rebuttal Testimony to certain recommendations and positions put forward by ORS, SBA and other intervenors' testimony. At this time, however, no formal stipulations of fact or position have been agreed to by Duke. The Companies are engaging in good faith discussions with ORS and other parties regarding the potential for settlement and stipulations of issues and will advise the Commission if issues can be resolved between the parties prior to the evidentiary hearing.

VI. <u>Conclusion</u>

The Companies' avoided cost rates and implementation of PURPA, as presented in the Companies' Application and supporting testimony and modified through rebuttal testimony, are just and reasonable to customers, non-discriminatory to small power producer QFs, and achieve the mandates from the South Carolina General Assembly set forth in Act 62, with significant consideration being given to the impact to customers.

Respectfully submitted, this the 8th day of October, 2019.

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